



## The Effect of Circulo Massage on Changes in Blood Pressure in Hypertension Patients

Ardhiyansyah Cahya Wardana\*, Gustiana Mega Anggita

Department of Sports Science, Faculty of Sports Science, Universitas Negeri Semarang, Indonesia

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### Abstract

**Introduction:** Human health is the main key in carrying out activities or life activities. Humans will not always have a strong and healthy body as they age and will experience a decline in the ability of body functions. One of the physical changes that occurs is increased blood pressure or hypertension. Hypertension is a condition or conditions in which a person experiences an increase in blood pressure above normal limits that can cause pain and even death. A person is said to have hypertension if the blood pressure exceeds the normal limit, which is  $> 140/90$  mmHg. Overcoming hypertension can be done in a variety of ways. **Objectives:** One of the efforts to reduce hypertension is to provide circulo massage treatment, which is one of the masse techniques that aims to improve peripheral blood circulation so as to help the recovery process and manage the rest of the body's metabolism and provide relaxation to the muscles and nerves. **Method:** The type of research used is with quantitative descriptive research methods. The research design uses the Pre-experimental design method. The research sample is part of the population. The sampling technique in this study uses total sampling, that is, the entire population is taken as a sample and the researcher does not determine the minimum size of the research sample. The sample in this study is 30 people. The instrument used to measure blood pressure is using a digital sphygmomanometer, to measure blood pressure both before and after the massage treatment. The data analysis techniques in this study are by normality test, homogeneity test, and difference test. **Result:** The results showed that the decrease in systole blood pressure from the average before the massage with the Circulo massage technique was 146.63 mmHg and after the Circulo massage the average systole blood pressure was 129.233 mmHg, so there was a change in the decrease of 17.4 mmHg. The decrease in diastole blood pressure from the average before the massage with the Circulo massage technique was 92.43 mmHg and after the Circulo massage the average diastole blood pressure became 80.90 mmHg, so there was a change in the decrease of 11.53 mmHg. **Conclusion:** It was concluded that there was a significant effect of circulo massage on changes in blood pressure in hypertensive patients in Yogyakarta therapy houses. Advice to hypertension sufferers in the Bantul Yogyakarta area in particular and the wider community in general that it is necessary to check blood pressure and pulse regularly so that it can be well controlled and can make circulo massage an alternative treatment.

\*Correspondence E-mail: [ardhiwardana@students.unnes.ac.id](mailto:ardhiwardana@students.unnes.ac.id)

## INTRODUCTION

In Indonesia, the incidence of hypertension ranges from 6-15% where there are still many sufferers who have not been reached by health services, especially in rural areas. Meanwhile, globally, in 2011 one billion people in the world suffered from hypertension, two-thirds of whom were in developing countries with low and medium incomes. The prevalence of hypertension is predicted to continue to increase where in 2025 it is estimated that around 29% of adults worldwide suffer from hypertension (Ministry of Health of the Republic of Indonesia, 2019).

Overcoming hypertension can be done in various ways. Some ways that can be done to control blood pressure can be pharmacological and non-pharmacological treatment (Ananto, 2017). Pharmacological treatment can be done by taking medication, while non-pharmacological treatment can be done by exercising, regulating diet, regulating rest patterns, and massage (Fatma Ekasari et al., 2021). Giving a massage can cause blood vessels to experience vasodilation, where the blood vessels widen so that it can improve blood circulation (Ari Wibowo, Kurniawan, 2021). Research results by (Mulyono, 2016) shows that giving massage manipulation will have an effect on the widening of blood vessels, joints and muscles are more relaxed so that blood flow and pulse rate return to normal more quickly. Non-pharmacological treatment is one alternative to reduce drug dependence and the side effects caused. According to Potterr, 2005 in (Nurhayati et al., 2015) that the advantages of non-pharmacological treatment are that it is cheaper, easier to do, effective and has no harmful side effects.

One of the efforts to reduce hypertension is by providing Circulo massage treatment, which is a massage technique that aims to improve peripheral blood circulation, thereby helping the recovery process and processing of the body's metabolic waste and providing relaxation to the muscles and nerves (Utami et al., 2022). Circulo massage is a massage that primarily targets blood and lymph circulation (Badaru et al., 2021). As is known, smooth blood circulation will have an impact on the smooth distribution of food to cells. Food as a source of cell energy will be burned with oxygen fire ( $O_2$ ) (Harahap et al., 2021).

The Circulo massage technique is stroking friction (grinding) with circular movements intended to destroy myogelosis, tapotement (hitting) with beating, hacking, clapping movements intended to maximize the results of the grinding, walken intended to perfect the removal of metabolic waste in the muscles and closed with effleurage (rubbing) intended for calming (Utami et al., 2022).

The smooth blood circulation due to Circulo massage will support the production and circulation of both hormones and antibodies. Hormones and antibodies will smooth the entire metabolic process in the body and help fight disease (Anggiat, 2022). Thus, Circulo massage is useful as a disease prevention and maintenance of internal organ function and can maintain health and fitness. Circulo massage is a recovery massage, so it is expected that after being

given the massage treatment the body will become more relaxed and both blood pressure and pulse will decrease (O' Hair et al., 2018). Research result (Millennia, 2023) There was a significant decrease in systolic and diastolic blood pressure in the Circulo massage group, which can be concluded that Circulo massage is effective in reducing both systolic and diastolic blood pressure. Similar research by (Kasmadi & Kafrawi, 2017) that the Circulo massage technique is more effective in reducing blood lactic acid levels.

## **METHOD**

The type of research used is quantitative descriptive research. The research design uses the Pre-experimental design method. The research was conducted through an initial test before treatment to obtain pretest data and will be re-measured after treatment to obtain posttest data. This study aims to see the effectiveness of Circulo massage on reducing blood pressure in hypertension patients at the Bantul Yogyakarta Therapy House. The instrument used to measure blood pressure using a digital sphygmomanometer. This tool is used to measure blood pressure both before and after massage treatment.

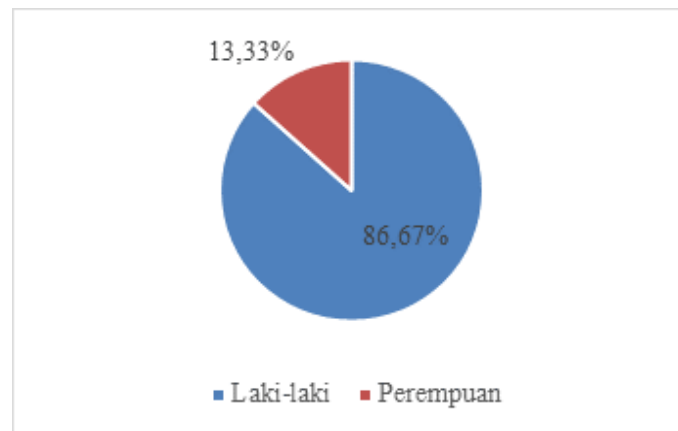
The population in this study were 30 hypertension sufferers at the Bantul Yogyakarta Therapy House, namely by observing blood pressure with TDS  $\geq 140$  mmHg and/or TDD  $\geq 90$  mmHg. This study used a total sampling technique. Total sampling is the entire population unit taken as a sample unit and researchers no longer need to determine the sampling technique and determine the minimum size of the research sample (Roflin et al., 2021: 14), so the sample in this study was 30 people.

Data analysis using statistical test t-test with SPSS data processing application version 24. Analysis of the difference test using the paired t-test with a significance level of the difference test of 0.05. This difference test will produce a t value and p value that can be used to prove whether there is a significant difference in pretest and posttest data with a level of 5%. Data is said to be significant if the p value  $< 0.05$  while the data is said to be insignificant if the p value  $> 0.05$  (Ghozali, 2020).

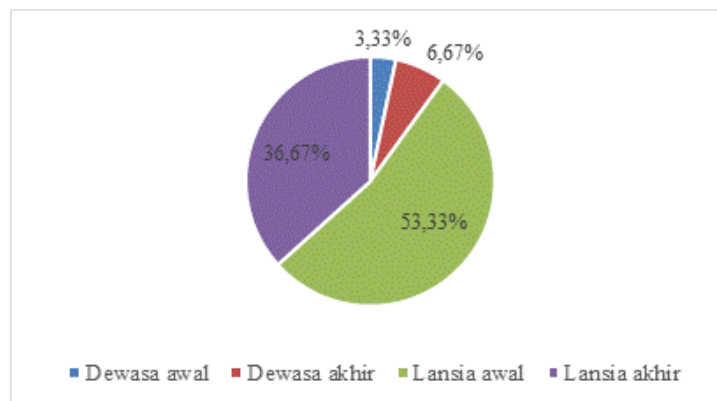
## **RESULT AND DISCUSSION**

Respondent characteristics include gender, age, education level and type of work as well as blood pressure before and after massage with the Circulo massage technique. Respondent characteristics based on gender show that out of 30 respondents with male gender, 26 patients (86.67%) and the remaining 4 patients (13.33%) are female. Respondent characteristics based on age show that out of 30 patients with hypertension aged between 46 - 55 years (early elderly, namely 16 respondents (53.33%). Then followed by late elderly (56 - 65 years) as many as 11 respondents (36.67%). Late adulthood (36 - 45 years) as many as 2 respondents (6.67%) and the least is early adulthood (26 - 35 years), namely 1 respondent (3.33%).

Respondent data based on gender shows that out of 30 respondents with male gender, 26 patients (86.67%) and the remaining 4 patients (13.33%) are female. If depicted with a pie chart, it can be seen in the following picture.



Picture 1. Respondent data based on gender



Picture 2. Respondent data by age

The description of blood pressure before the circulation massage used by researchers was categorized based on the blood pressure classification according to JNC 7 which is divided into normal, prehypertension, hypertension level 1 and hypertension level 2.

The difference test was used to determine the effect of circulo massage treatment on changes in blood pressure in hypertensive patients. The results of the paired t-test are presented in the following table.

Table 1. Results of paired sample test of systolic blood pressure

Blood pressure	t	df	sig	Information
Systolic – change in blood pressure	10,676	29	0.00	Significant

Table 2. Results of the paired sample test for diastolic blood pressure

Blood pressure	t	df	sig	Information
Diastole – change in blood pressure	7,777	29	0.00	Significant

Based on the results of 30 respondents, the minimum value of systolic blood pressure was 109 mmHg and the maximum value was 142 mmHg with an average systolic blood pressure of 129.23 mmHg. While diastolic blood pressure has a minimum value of 62 mmHg and a maximum of 95 mmHg with an average of 80.90 mmHg.

Based on the results of the analysis, it shows that systolic blood pressure in hypertensive patients before and after massage with the Circulo massage technique experienced a significant decrease. The decrease in systolic blood pressure from the average before massage with the Circulo massage technique was 146.63 mmHg and after Circulo massage the average systolic blood pressure became 129.233 mmHg, so that there was a decrease of 17.4 mmHg. The results of the analysis of the effect of Circulo massage on changes in systolic blood pressure in hypertensive patients with a p value  $<0.05$  so that it can be concluded that systolic blood pressure before and after massage with the Circulo massage technique experienced a significant difference.

Based on the results of the analysis, it shows that diastolic blood pressure in hypertensive patients before and after massage with the Circulo massage technique experienced a significant decrease. The decrease in diastolic blood pressure from the average before massage with the Circulo massage technique was 92.43 mmHg and after Circulo massage the average diastolic blood pressure became 80.90 mmHg, so that there was a decrease of 11.53 mmHg. The results of the analysis of the effect of Circulo massage on changes in diastolic blood pressure in hypertensive patients with a p value  $<0.05$  so that it can be concluded that diastolic blood pressure before and after massage with the Circulo massage technique experienced a significant difference. Circulo massage therapy is effective in lowering blood pressure. This is because the administration of the Circulo massage technique causes dilation of the blood vessels, the joints and muscles are more relaxed, so that blood flow and pulse rate return to normal faster (Tambunan, 2021).

The results of this study are the same as the results of a study conducted by Rochman (2022) which examined the effectiveness of Circulo massage on blood pressure and pulse rate. The results of his study showed that the systolic value before and after treatment decreased by 7.60% with a significance value of  $0.000 <0.05$ . The diastolic value before treatment decreased by 8.40% with a significance value of  $0.000 <0.05$ . So the conclusion in the study conducted is that Circulo massage is effective in lowering blood pressure in blind elderly people at the Mardi Wuto Social Agency, Yogyakarta (Iwandana et al., 2022)

Similar research results were conducted by Priyoadi, et al. (2017) with the title "Differences in the Effects of Sports Massage, Circulo Massage, and Frirage Massage on Changes in Blood Pressure, Pulse Rate and Respiratory Rate". The results of the study showed that the three massages, namely sports massage, circulo and frirage can reduce blood pressure, pulse rate and respiratory rate. Similar research by (Givi, 2018) with the research results showing

that the average systolic blood pressure (SBP) and diastolic blood pressure (DBP) in the massage group were significantly lower compared to the control group.

Various ways to control blood pressure and pulse, one of which is massage therapy. Giving the right massage will provide benefits for the body (Nanda et al., 2019). Giving a massage causes the blood vessels to experience vasodilation, where the blood vessels widen, thus improving blood circulation (Graha & Priyo, 2008). The same thing was expressed by (Mulyono, 2016) in his journal stated that giving massage manipulation will have the effect of widening blood vessels, joints and muscles becoming more relaxed so that blood flow and pulse rate return to normal more quickly.

The results of this study are in accordance with the opinions of Jacobson and Wolpe (O' Hair et al., 2018) which states some benefits of relaxation, including reducing stress-related problems such as hypertension, headaches, reducing anxiety levels. One way to control blood pressure is through Circulo massage therapy. Giving a good and correct massage will provide good benefits for the body (Septi Fandinata & Ernawati, 2020). Giving massage can cause blood vessels to experience vasodilation where the condition of the blood vessels experiences widening so that it can smooth blood circulation (Yanti, et al., 2019: 21).

## CONCLUSION

Based on the results of the analysis of the Effect of Circulo massage on Changes in Blood Pressure in Hypertension Patients at the Bantul Yogyakarta therapy house, it can be concluded that the decrease in systolic blood pressure from the average before massage with the Circulo massage technique was 146.63 mmHg and after Circulo massage the average systolic blood pressure became 129.233 mmHg, so that there was a change in the decrease of 17.4 mmHg. The decrease in diastolic blood pressure from the average before massage with the Circulo massage technique was 92.43 mmHg and after Circulo massage the average diastolic blood pressure became 80.90 mmHg, so that there was a change in the decrease of 11.53 mmHg. There is a significant effect of Circulo massage on changes in blood pressure in hypertension patients at the Yogyakarta therapy house.

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